Appl. No.: 10/511,862
Reply to Office Action dated January 4, 2007

Docket No.: RTN-164PUS

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently amended) A method for shaping a baseband signal comprising:

      providing a plurality of coefficient memories, each having a plurality of coefficients values representing filter response waveform values;

      determining a coefficient memory address for each of the coefficient memories;

      addressing each of the plurality of coefficient memories;

      retrieving an addressed coefficient value from each of the plurality of coefficient memories;

      providing a negative value for each of the retrieved ones of the plurality of coefficient values;

      selecting in response to the baseband signal for each coefficient value, one of the retrieved coefficient value and the negative value; and

      summing the selected values [value from each coefficient memory] for providing a shaped signal.

2. (Original) The method of claim 1 further comprising sharing the plurality of coefficient memories for shaping both an in-phase baseband signal and a quadrature baseband signal.

3. (Currently amended) The method of claim 2 wherein sharing the plurality of memories comprises:

      retrieving one of the coefficient values corresponding to the in-phase baseband signal on a first edge of a clock signal; and

      retrieving one of the coefficient values corresponding to the [the] quadrature baseband signal on a different second edge of the clock signal.

4. (Original) The method of claim 3 wherein the clock signal comprises a digital to analog converter clock signal.

5. (Original) The method of claim 1 wherein determining a coefficient memory address comprises:

        determining an increment for providing a predetermined number of samples for each of a plurality of symbols comprising the baseband signal;

        and incrementing an address counter in response to the predetermined number of samples for each symbol and a predetermined coefficient memory size.

6. (Currently amended) The method of claim 1 wherein the baseband signal comprises an in-phase signal and a quadrature signal;

        wherein selecting [the] for each coefficient value comprises selecting an in-phase value in response to the in-phase signal and selecting a quadrature value in response to the quadrature signal; and

        wherein summing the selected [value] values comprises summing the selected in phase values [value from each coefficient memory] for providing a shaped in phase signal and summing the selected quadrature values [value from each coefficient memory] for providing a shaped quadrature signal.

7. (Original) The method of claim 1 wherein the negative value comprises at least one of:

        a 2's complement value;

        an offset binary value; and

        a signed magnitude value.

8. (Original) The method of claim 1 wherein providing a plurality of coefficient memories comprises combining at least two filter coefficients for forming the plurality of coefficient values such that coefficient memory storage is minimized.

9.   (Currently amended) The method of claim 1 [further] wherein [providing a] the plurality of coefficient memories provided further [comprises providing] provide coefficient [memories] values corresponding to a plurality of roll-off factors.

10.   (Currently amended) The method of claim 1 wherein the plurality of coefficient memories further includes one of:

the sum of a first filter response value and a second filter response value;

and the difference of a first filter response value and a second filter response value; and

wherein the step of retrieving an addressed coefficient value retrieves one of the sum of a first filter response value and a second filter response value and the difference of a first filter response value and a second filter response value.

11.   (Original) The method of claim 10 wherein the first filter response and the second filter response are symmetric.

12.   (Currently amended) The method of claim 10 wherein retrieving coefficient values comprises:

providing an address counter having a plurality of logic outputs for addressing the coefficient memories; and

determining for each coefficient memory whether to retrieve one of the sum of a first filter response value and a second filter response value and the difference of a first filter response value and a second filter response value in response to selected ones of the logic outputs.

13.   (Original) The method of claim 12 further comprising:

providing a logic circuit having an output, a first input coupled to a logic output of the address counter, a second input coupled to an in-phase data symbol bit and a third input coupled to a quadrature data symbol bit;

determining whether to select one of the retrieved value and the negative value in response to the output of the logic circuit.

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14. (Original) The method of claim 10 wherein summing the selected value comprises:

    providing a plurality of adder stages, each adder coupled to a pipeline register;

    clocking the pipeline register at a digital to analog converter (D/A) rate; and

scaling and formatting the summed values after a final adder stage.

15. (Currently amended) A method for shaping a baseband signal comprising:

    providing a plurality of coefficient memories, each having a plurality of coefficients

values representing filter response waveform values;

    determining a coefficient memory address for each of the coefficient memories;

    addressing each of the plurality of coefficient memories;

    retrieving an addressed coefficient value from each of the plurality of coefficient

memories;

    providing a negative value for each of the retrieved ones of the plurality of coefficient

values;

    selecting in response to the baseband signal for each coefficient value, one of the

    retrieved coefficient value and the negative value; and

    summing the selected values for providing a shaped signal; and

    wherein the plurality of coefficient memories further includes one of the sum of a first

filter response value and a second filter response value and the difference of a first filter response

value and a second filter response value; and

    [The method of claim 10] wherein the baseband signal is clocked at a symbol rate and

the retrieval of coefficients is clocked at a digital to analog converter (D/A) rate such that the

number of retrievals per coefficient equals the D/A rate divided by the symbol rate.

16. (Original) The method of claim 10 wherein the filter waveform comprises a raised cosine.

17. (Original) The method of claim 10 wherein the filter waveform comprises a square root

raised cosine.

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18. (Currently amended) [A] <u>The</u> method [for shaping a baseband signal comprising] <u>of claim 1 wherein coefficient values at in instance in time are each indicative by a</u> [:

    providing a plurality of digital words, each] digital word [indicating a coefficient value at an instant of time;] <u>and wherein</u>

    [selecting responsive to the baseband signal,] one of the digital words and a corresponding negative value of the digital word <u>are selected in response to the baseband signal,</u> and

    [summing] the selected digital [word] <u>words are summed</u> for providing a baseband shaped signal.

19. (Currently amended) The method of claim 18 <u>further comprising</u> [wherein providing a plurality of digital words comprises] combining at least two filter coefficients for forming the plurality of coefficient values <u>indicated by each digital word</u> such that coefficient memory storage is minimized.

20. (Currently amended) A device comprising:

    a plurality of coefficient memories, each memory having an input address bus, a multiplexor input and a coefficient value output;

    a plurality of first registers, each having <u>a digital to analog (D/A) clock input and</u> an input coupled to a respective one of the coefficient value outputs, [a digital to analog (D/A) clock input] and an output;

    a plurality of negative value circuits, each circuit having an input coupled to a respective one of the first register outputs, and an output;

    a plurality of 2:1 multiplexors, each having a first input coupled to a respective one of the first register outputs and having a second input coupled to a respective one of the output of the plurality of negative value circuits;

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a plurality of second registers, each having <u>a digital to analog (D/A) clock input and</u> an input coupled to a respective one of the outputs of the plurality of 2:1 multiplexors, [a digital to analog (D/A) clock input] and an output; and

an adder having a plurality of inputs coupled to respective ones of the plurality of second registers.

21. (Original) The device of claim 20 wherein each of the plurality of negative value circuits comprises at least one of: a 2's complement logic element; an offset binary logic element; and a signed magnitude logic element.

22. (Original) The device of claim 20 further comprising a coefficient address generator having an output coupled to a coefficient memory input address bus, the input address having a plurality of address lines.

23. (Original) The device of claim 22 wherein the coefficient address generator further comprises:

an adder having a plurality of address output lines;

an address register coupled to the plurality of address output lines and having clocked address line outputs and an address counter most significant bit output;

an exclusive or logic gate (XOR) array having address inputs coupled to the clocked address lines outputs and an address counter most significant bit input coupled to the address counter most significant bit output, and outputs coupled to a corresponding plurality of the plurality of address lines of the coefficient memory address bus; and

an XOR multiplexor having inputs coupled a pair of baseband bit signals and an output coupled to one of the plurality of address lines of the coefficient memory address bus.